

## Objectives

If you keep up with medical library blogs, you have probably noticed many mentions of *PubMed* interface sites or third-party *PubMed* search tools. In an effort to figure out which sites were actually useful and how they compared to *ENTREZ PubMed*, over 40 interfaces were reviewed to prepare a pathfinder for the faculty and students at VCU.

## Methods

- The process began with a search for interface programs.
- Several web sites had collected lists of programs which were collated to produce a final list (which grew as the project progressed).
- Each program web site was checked, first to be sure the URL was still valid, then to learn more about the program.
- As well as ease of use and use of MeSH headings, unique functions were considered.

## Results

- At the time of the original guide writing, 35 interface programs with different characteristics were chosen.
- Twelve provided basic *PubMed* searching, though usually with some sort of extra help like MeSH trees for more specific searching or easy to use buttons for specific search parameters.
- Nine programs had specialty searching, usually gene or molecular biology interfaces.
- Nine programs compared two or more groups of articles or abstracts to find connections.
- Five programs created charts or graphs from the search data.
- Two programs allowed for discussion and rating of articles.
- Two programs suggested keywords or authors to act as referees when presented with an abstract.
- There are now 37 programs on the web list and 11 other programs were considered but not used for various reasons.

## Conclusions

For most people, *ENTREZ PubMed* is an excellent interface and improvements by NCBI over the years have made it easier to use. However, there are some situations, like a specialty search or comparison, which can be easier with one of the *PubMed* interfaces reviewed. A chart was created for the research guide to help users choose the best *PubMed* interface.

A couple of disclaimers are included on the research guide web page:

- Many of these interfaces are developed by small groups of people working from a university department or lab. As such, there is no guarantee of continued funding so any of these sites could stop working or charge fees in the future.
- Also, some of the specialty databases will take time to process your information after you send in your data sets. In other cases, you need to have specifically formatted data to use the system. Please read through all instructions carefully.

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<p><b>General PubMed Searching</b> askMedline (<i>natural language searching</i>) Anne O'Tate BabelMeSH eTBLAST HubMed (<i>relevancy ranking and graphing</i>) Interact MeshPubMed (<i>interactive subject heading trees</i>) PubFocus (<i>relevancy based on citation analysis</i>) PubMed Gold (<i>limit to free full-text only</i>) PubReMiner (<i>keyword frequency searching</i>) ReleMed (<i>relevancy ranking of articles</i>) SLIM XplorMed (<i>word chain analysis</i>)</p>	<p><b>Finding Connections</b> Arrowsmith BioE Bitola Chilibot ConceptLink GeneLink MedMiner MedMOLE</p>	<p><b>Molecular and other Specialty Searching</b> Author-ity (<i>authors</i>) Daily Updates (<i>drugs</i>) Fable (<i>human genes</i>) GoPubMed (<i>gene ontology</i>) HAPI (<i>gene similarity</i>) iHOP (<i>genes and proteins</i>) MedMOLE (<i>genes</i>) Medstory (<i>web information, NIH grants and Clinical trials</i>) PICO searching</p>	<p><b>Suggest keyword, referees, experts or journals.</b> Authority Authority eTBLAST Kfinder</p>	<p><b>Rate and Discuss Articles</b> BioWizard JournalReview</p>	<p><b>Visualizing Information</b> AliBaba ConceptLink eTBLAST HubMed PubNet</p>	<p><b>Not Included in Web Page</b> BioText ClusterMed CureHunter Healia LitMiner MedBlast MEDIE Medscan PubCrawler PubMatrix PubMed Assistant PubMed Reader PubViz PubWindows Semantic Gene Organizer</p>
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## A Selection of Useful Non-NLM PubMed Interfaces

The screenshot shows the ReleMed interface with a network graph on the left and a list of search results on the right. The graph displays various genes and their interactions, while the results list includes titles like 'The human receptor 12 (DRD2) gene has polymorphisms that have been linked to regulation of the dopamine system...' and 'The present study examined the relationship of the DRD2 1447 G/A and 4 polymorphisms with short-term clinical outcome...'.

The screenshot shows the Medstory interface with search results for 'restless leg syndrome'. It features filters for 'Drugs & Substances', 'Conditions', 'In Clinical Studies', 'Molecular Biology', 'Genes', and 'Experts'. The results list includes 'Parkinson Disease Neuroprotection Clinical Trial' and 'Ion channels regulating REM-related cholinergic neurons'.

The screenshot shows the ReleMed interface with search results for 'drd2 alcohol dependence phenotypes family based'. It includes a list of search results with titles like 'Family-based and case-control study of DRD2, DAT, SHTT, COMT genes polymorphisms in alcohol dependence' and 'Haplotype splicing TTC12 and ANKK1, flanked by the DRD2 and NCAM1 loci, is strongly associated to nicotine dependence...'.

## Interact from NLM

The screenshot shows the Interact from NLM interface with search results for 'drd2 and ankk1'. It includes a list of search results with titles like 'A dopamine D2 receptor gene-related polymorphism is associated with schizophrenia in a Spanish population isolate' and 'Haplotype splicing TTC12 and ANKK1, flanked by the DRD2 and NCAM1 loci, is strongly associated to nicotine dependence...'.

The screenshot shows the Chilibot interface with search results for 'DRD2 & ANKK1'. It includes a list of search results with titles like 'Identification and characterization of ANKK1 a novel kinase gene closely linked to DRD2 on chromosome band 11q23.1' and 'The strong association between a potentially functional polymorphism, downstream of the DRD2 gene and schizophrenia, suggests that the direct or indirect functional effects of this polymorphism, acting on either the ANKK1 or DRD2 genes, may play a role in the pathophysiology of schizophrenia'.

The screenshot shows the PubMed PubReMiner interface with search results for 'DRD2 alcohol dependence phenotypes family based'. It includes a list of search results with titles like 'Family-based and case-control study of DRD2, DAT, SHTT, COMT genes polymorphisms in alcohol dependence' and 'Haplotype splicing TTC12 and ANKK1, flanked by the DRD2 and NCAM1 loci, is strongly associated to nicotine dependence...'.

The screenshot shows the goPubMed interface with search results for 'drd2 alcohol dependence phenotypes family based'. It includes a list of search results with titles like 'Family-based and case-control study of DRD2, DAT, SHTT, COMT genes polymorphisms in alcohol dependence' and 'Haplotype splicing TTC12 and ANKK1, flanked by the DRD2 and NCAM1 loci, is strongly associated to nicotine dependence...'.